

What is claimed is:

1. A polypeptide comprising a glycosylation-modified IL-20 polypeptide which preferentially signals through one of the multiple IL-20 receptor complexes at a level at least 1.3 times the level it signals through another IL-20 receptor complex.
2. The polypeptide of claim 1, wherein the polypeptide preferentially signals through one of the multiple IL-20 receptor complexes at a level at least 2.0 times the level it signals through another IL-20 receptor complex.
3. The polypeptide of claim 1 or 2, wherein the receptor complex to which said polypeptide preferentially signals through comprises the IL20R1 and IL20R2 polypeptides (SEQ ID NOs: 22 and 3).
4. A glycosylation-modified IL-20 polypeptide, wherein the polypeptide comprises a sequence selected from the group consisting of:
 - a) amino acids 25 through 125 of a sequence selected from the group consisting of SEQ ID NOs: 5, 6, 7, 8, 14, 15, 16, 17, 18, 19, 20 and 21 in which an N-linked glycosylation site is located within three amino acids to either side of where it is in said sequence,
 - b) a sequence at least 95% identical to amino acids 25 through 125 of a sequence selected from the group consisting of SEQ ID NOs: 5, 6, 7, 8, 14, 15, 16, 17, 18, 19, 20 and 21 in which an N-linked glycosylation site is located within three amino acids to either side of where it is in said sequence,
 - c) a sequence at least 95% identical to amino acids 25 through 125 of a sequence selected from the group consisting of SEQ ID NOs: 5, 6, 7, 8, 14, 15, 16, 17, 18, 19, 20 and 21,
 - d) amino acids 25 through 125 of a sequence selected from the group consisting of SEQ ID NOs: 5, 6, 7, 8, 14, 15, 16, 17, 18, 19, 20 and 21.
 - e) amino acids 25 through the carboxy terminus of a sequence selected from the group consisting of SEQ ID NOs: 5, 6, 7, 8, 14, 15, 16, 17, 18, 19, 20

and 21 in which an N-linked glycosylation site is located within three amino acids to either side of where it is in said sequence,

f) a sequence at least 95% identical to amino acids 25 through the carboxy terminus of a sequence selected from the group consisting of SEQ ID NOs:

5 5, 6, 7, 8, 14, 15, 16, 17, 18, 19, 20 and 21 in which an N-linked glycosylation site is located within three amino acids to either side of where it is in said sequence,

g) a sequence at least 95% identical to amino acids 25 through the carboxy terminus of a sequence selected from the group consisting of SEQ ID NOs:

10 5, 6, 7, 8, 14, 15, 16, 17, 18, 19, 20 and 21, and

h) amino acids 25 through the carboxy terminus of a sequence selected from the group consisting of SEQ ID NOs: 5, 6, 7, 8, 14, 15, 16, 17, 18, 19, 20 and 21.

15 5. A glycosylation-modified IL-20 fusion polypeptide, wherein the polypeptide comprises a first portion and a second portion joined by a peptide bond and the first portion comprises a sequence selected from the group consisting of:

a) amino acids 25 through 125 of a sequence selected from the group consisting of SEQ ID NOs: 5, 6, 7, 8, 14, 15, 16, 17, 18, 19, 20 and 21 in which an N-linked glycosylation site is located within three amino acids to either side of where it is in said sequence,

20 b) amino acids 25 through 125 of a sequence at least 95% identical to a sequence selected from the group consisting of SEQ ID NOs: 5, 6, 7, 8, 14, 15, 16, 17, 18, 19, 20 and 21 in which an N-linked glycosylation site is located within three amino acids to either side of where it is in said sequence,

25 c) amino acids 25 through 125 of a sequence at least 95% identical to a sequence selected from the group consisting of SEQ ID NOs: 5, 6, 7, 8, 14, 15, 16, 17, 18, 19, 20 and 21,

30 d) amino acids 25 through 125 of a sequence selected from the group consisting of SEQ ID NOs: 5, 6, 7, 8, 14, 15, 16, 17, 18, 19, 20 and 21.

- e) amino acids 25 through the carboxy terminus of a sequence selected from the group consisting of SEQ ID NOs: 5, 6, 7, 8, 14, 15, 16, 17, 18, 19, 20 and 21 in which an N-linked glycosylation site is located within three amino acids to either side of where it is in said sequence,
- 5 f) a sequence at least 95% homologous to amino acids 25 through the carboxy terminus of a sequence selected from the group consisting of SEQ ID NOs: 5, 6, 7, 8, 14, 15, 16, 17, 18, 19, 20 and 21 in which an N-linked glycosylation site is located within three amino acids to either side of where it is in said sequence,
- 10 g) a sequence at least 95% homologous to amino acids 25 through the carboxy terminus of a sequence selected from the group consisting of SEQ ID NOs: 5, 6, 7, 8, 14, 15, 16, 17, 18, 19, 20 and 21, and,
- h) amino acid 25 through the carboxy terminus of a sequence selected from the group consisting of SEQ ID NOs: 5, 6, 7, 8, 14, 15, 16, 17, 18, 19, 20 and 21.
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6. A polynucleotide comprising a sequence encoding a glycosylation-modified IL-20 polypeptide defined in claims 1, 2, 3, 4 or 5.
- 20
7. A polynucleotide comprising a sequence from the group consisting of:
- a) nucleotides 75 through 375 of a sequence selected from the group consisting of SEQ ID NOs: 10, 11, 12 and 13, in which the nucleotides encoding an N-linked glycosylation site is located within 9 nucleotides to either side of where it is in said sequence,
- 25 b) a sequence at least 95% identical to nucleotides 75 through 375 of a sequence selected from the group consisting of SEQ ID NOs: 10, 11, 12 and 13, in which the nucleotides encoding an N-linked glycosylation site is located within 9 nucleotides to either side of where it is in said sequence,
- c) a sequence at least 95% identical to nucleotides 75 through 375 of a sequence selected from the group consisting of SEQ ID NOs: 10, 11, 12 and 13,
- 30

- d) nucleotides 75 through 375 of a sequence selected from the group consisting of SEQ ID NOs: 10, 11, 12 and 13,
- e) nucleotides 75 through the 3' end of a sequence selected from the group consisting of SEQ ID NOs: 10, 11, 12 and 13, in which the nucleotides encoding an N-linked glycosylation site is located within 9 nucleotides to either side of where it is in said sequence,
- f) a sequence at least 95% identical to nucleotides 75 through the 3' end of a sequence selected from the group consisting of SEQ ID NOs: 10, 11, 12 and 13, in which the nucleotides encoding an N-linked glycosylation site is located within 9 nucleotides to either side of where it is in said sequence,
- g) a sequence at least 95% identical to nucleotides 75 through the 3' end of a sequence selected from the group consisting of SEQ ID NOs: 10, 11, 12 and 13,
- h) nucleotides 75 through the 3' end of a sequence selected from the group consisting of SEQ ID NOs: 10, 11, 12 and 13,
- i) a sequence at least 95% identical to a sequence selected from the group consisting of SEQ ID NOs: 10, 11, 12 or 13 and,
- j) SEQ ID NOs: 10, 11, 12, or 13.
8. A vector comprising a DNA sequence defined in claim 6 or 7.
9. The vector of claim 8, which is an expression vector.
10. A vector according to claim 8, which is replicable in a prokaryotic and/or a eukaryotic host cell.
11. A vector according to claim 9, which is replicable in a eukaryotic cell.
12. A vector according to claim 9, which is replicable in an insect cell.
13. A vector according to claim 9, which is replicable in a yeast cell.

14. A vector according to claim 11, which is replicable in a mammalian cell.
15. A vector according to claim 14, which is replicable in a Chinese Hamster Ovary cell.
- 5 16. A vector according to claim 14, which is replicable in a COS cell.
17. A host cell comprising the vector of claim 8.
- 10 18. A host cell according to claim 17, which is a prokaryotic cell.
19. A host cell according to claim 17, which is a eukaryotic cell.
20. A host cell according to claim 17, which is an insect cell.
- 15 21. A host cell according to claim 17, which is a yeast cell.
22. A host cell according to claim 20, which is a mammalian cell.
- 20 23. A host cell according to claim 22, which is a Chinese Hamster Ovary cell.
24. A host cell according to claim 22 which is a COS cell.
25. A process for preparing a glycosylation-modified IL-20 polypeptide of any one of
25 Claims 1 through 5 comprising culturing a suitable host cell comprising a vector
according to any one of Claim 8 through 16 under conditions promoting expression of the
polypeptide, and purifying said polypeptide.
26. A method of increasing the number of one or more type(s) of hematopoietic
30 progenitor cells in a mammal in need thereof comprising administering a therapeutically
effective amount of a glycosylation-modified IL-20 polypeptide described in claim 1, 4 or
5.

27. A method for treating or preventing a hematopoietic disorder in a mammal comprising the administration to said mammal in need of such treatment a pharmaceutical composition comprising a therapeutically effective amount of a glycosylation-modified IL-20 polypeptide described in any one of Claims 1 through 5.
28. A method of treating or preventing anemia, thrombocytopenia and/or neutropenia in a mammal comprising the administration to said mammal in need of such treatment a pharmaceutical composition comprising a therapeutically effective amount of a glycosylation-modified IL-20 polypeptide described in any one of Claims 1 through 5.
29. A pharmaceutical composition comprising a hematopoietic progenitor cell-stimulating amount of a glycosylation-modified IL-20 polypeptide described in any one of Claims 1 through 5 and a pharmaceutically acceptable carrier, diluent or excipient.
30. A method for treating or preventing psoriasis in a mammal comprising the administration to said mammal in need of such treatment a pharmaceutical composition comprising a therapeutically effective amount of a glycosylation-modified IL-20 polypeptide described in any one of Claims 1 through 5.
31. A method for treating or preventing inflammation in a mammal comprising the administration to said mammal in need of such treatment a pharmaceutical composition comprising a therapeutically effective amount of a glycosylation-modified IL-20 polypeptide described in any one of Claims 1 through 5.
32. A method for treating or preventing cancer in a mammal comprising the administration to said mammal in need of such treatment a pharmaceutical composition comprising a therapeutically effective amount of a glycosylation-modified IL-20 polypeptide described in any one of Claims 1 through 5.
33. A method for treating or preventing a cardiovascular disorder in a mammal comprising the administration to said mammal in need of such treatment a pharmaceutical

composition comprising a therapeutically effective amount of a glycosylation-modified IL-20 polypeptide described in any one of Claims 1 through 5.

- 5 34. A method for treating or preventing an immune system disorder in a mammal comprising the administration to said mammal in need of such treatment a pharmaceutical composition comprising a therapeutically effective amount of a glycosylation-modified IL-20 polypeptide described in any one of Claims 1 through 5..
- 10 35. A method for treating or preventing obesity in a mammal comprising the administration to said mammal in need of such treatment a pharmaceutical composition comprising a therapeutically effective amount of a glycosylation-modified IL-20 polypeptide described in any one of Claims 1 through 5.
- 15 36. A pharmaceutical composition comprising a psoriasis-relieving amount of a glycosylation-modified IL-20 polypeptide described in any one of Claims 1 through 5 and a pharmaceutically acceptable carrier, diluent or excipient.
- 20 37. A pharmaceutical composition comprising an inflammation-decreasing amount of a glycosylation-modified IL-20 polypeptide described in any one of Claims 1 through 5 and a pharmaceutically acceptable carrier, diluent or excipient.
- 25 38. A pharmaceutical composition comprising a CFU-GEMM stimulating amount of a glycosylation-modified IL-20 polypeptide described in any one of Claims 1 through 5 and a pharmaceutically acceptable carrier, diluent or excipient.
39. Use of a glycosylation-modified IL-20 polypeptide described in any one of Claims 1 through 5 for the preparation of a pharmaceutical composition to treat patients diagnosed with a hematopoietic disorder.
- 30 40. The use of Claim 38 wherein the hematopoietic disorder is anemia, thrombocytopenia or neutropenia.

41. The use of Claim 39 or Claim 40 wherein the composition is administered in an amount effective to stimulate hematopoietic progenitor cell differentiation.

42. Use of a glycosylation-modified IL-20 polypeptide described in any one of Claims 1
5 through 5 for the preparation of a pharmaceutical composition to treat patients with psoriasis, inflammation, cancer, cardiovascular disorder, or immune system disorder.